

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
-----				
		115FM03A		
SHEAR PLATE ASSEMBLY, ITEM 115 (PIVOTED, PLANAR) ----- SV778540-56 (1) OR (ORU) ----- SV824133-8 (1)	2/2	Fails in PRESS position. (PreEVA)  Cable or linkage mechanism jams; severed cable or connection; high bearing drag, actuator carriage jams.	END ITEM: Actuator cable and/or carriage will not translate from "PRESS" position. Maintains SOP shut off.  GFE INTERFACE: Unable to open SOP shutoff valve. SOP regulator is kept OFF line. Suit pressure is regulated at 4.3 psi.  MISSION: Loss of use of one EMU. Repress airlock if failure occurs during airlock depressure- ization.  CREW/VEHICLE: None.  TIME TO EFFECT /ACTIONS: Immediate.  TIME AVAILABLE: N/A  TIME REQUIRED: N/A  REDUNDANCY SCREENS: A-N/A B-N/A C-N/A	A. Design - The O2 actuator system incorporates features to maintain reliable and low friction motion capability of the moving parts. These features include material selections, surface treatments and control of the wheelbase and loads of moving parts. The actuator cam has Nituff coated surfaces and has a long wheelbase with ball bearing supports, while the carriage is made of Nitronic 60 and slides on electrofilmed stainless steel ways with long wheelbase. The pushbutton slide bearings are made of A-286 and lubricated when assembled into the Nitronic 60 carriage. The flex cable assembly consists of a stainless steel flex cable sliding in a Teflon lined sheath.  B. Test - Component Acceptance Test - None.  PDA Test - Per SEMU-60-010 the forces required to disengage the actuator detents, and the forces required to push or pull the actuator through its complete travel are measured. The force required to push the actuator out of the "OFF", "PRESS", "EVA", or "IV", detents must be 3.0 - 6.0 lbs. The forces required to slide the actuator to any of the above four positions must be 15 lbs maximum. Proper cam mechanism actuation is verified through this test.  Certification Test - Certified for a useful life of 20 years from the date of manufacture. Successful refurbishment will extend useful life to 30 years max. (ref EMUM1-0491, EMUM1-0027).  C. Inspection - Details are 100% inspected per drawing dimensions and surface finish characteristics. Details are manufactured from material with certified physical and chemical properties. All details, gases and test facilities are cleaned and inspected to HS3150 EM50A to preclude contamination clogging.  D. Failure History - B-EMU-115-A002 (3/08/90). Excessive force was required to operate the O2 Actuator from "PRESS" to "EVA" during an ETA chamber run. The condition could not be duplicated when the shear plate assembly was removed from the PLSS and returned to Hamilton. Therefore, no corrective action was taken.  E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, V1103 Performance Data and Item 113 Regulator Check. FEMU-R-001 Para 8.2 EMU Preflight KSC Checkout for EET processing.  F. Operational Use - Crew Response - PreEVA: Repress airlock, use third EMU if available. EMU is no go for EVA. PostEVA: Perform quick doffing procedure if limited by cabin PP02. Have IV crewmember cover the neck ring vent hole while crewmember doffs the HUT. Then install SCOF to minimize rate of O2 vented to cabin. O2 still bleeds through CO2

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
		115FM03A		line when EMU is unbuttoned. Training - No training specifically covers this failure mode. Operational Considerations - Flight rules define loss of EMU for loss of SOP pressure regulation. EVA checklist procedures verify hardware integrity and systems operational status prior to EVA.

EXTRAVEHICULAR MOBILITY UNIT  
SYSTEMS SAFETY REVIEW PANEL REVIEW  
FOR THE  
I-115 SHEAR PLATE ASSEMBLY  
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

Prepared by: *J. Roman / 3/27/02*  
HS - Project Engineering

Approved by: *RMB*  
LSS

*M. Smyth*  
HS - Reliability

*V. Barnes*  
EMU

*Alan Plough for RMA*  
HS - Engineering Manager

*[Signature]*  
EMU

*James J. Som* - ul/mods  
EMU

*John Olin*  
EMU

*[Signature]*  
EMU